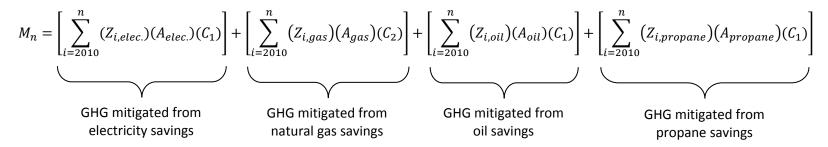
Sector

Buildings, Energy Efficiency, and Demand-Side Management

Strategy/Policy

All Cost Effective Energy Efficiency

Methodology and Data Sources for GHG Emission Reduction Calculation



where:

Symbol	Value	Unit	Description	Data Source & Assumption
M_n	(calculated)	MMTCO ₂ e	mitigation in year n	(see below)
$Z_{i,elec.}$	(depends on year i)	MWh	annual electric savings for year i, net of electric and gas plans savings	Annual results supplied by Rich May LLC on 11/18/13 by Energy Efficiency Program Administrators, less the amount included in the Business-As-Usual projection (baseline). Assumed energy efficiency measures have an average lifespan of 11 years.
$Z_{i,gas}$	(depends on year i)	therms	annual natural gas savings for year i, net of electric and gas plans savings	
$Z_{i,oil}$	(depends on year i)	mmBtu	annual oil savings for year i	
$Z_{i,propane}$	(depends on year i)	mmBtu	annual propane savings for year i	
$A_{elec.}$	1030	lb CO ₂ /MWh	emission factor for electricity savings	2010 New England Average Avoided CO2 Emissions, average for New England, average for winter & summer (AESC 2009, Exhibit 6-47).
A_{gas}	0.00585	short ton CO₂/therm	emission factor for natural gas savings	http://www.epa.gov/cleanenergy/energy- resources/refs.html 0.1 mmBtu/1 therm * 14.47 kg C/mmBtu * 44 g CO ₂ /12 g C * 1 metric ton/1000 kg * 1.1023 metric ton/short ton = 0.00585 short tons CO ₂ /therm
A_{oil}	161.386	lb CO₂/mmBtu	emission factor for oil savings	US Energy Information Administration, Table A.3. Carbon Dioxide Uncontrolled Emission Factors Distillate Fuel Oil http://www.eia.gov/electricity/annual/html/epa a 03.ht ml

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Symbol	Value	Unit	Description	Data Source & Assumption
$A_{propane}$	139.178	lb CO₂/mmBtu	emission factor for propane savings	US Energy Information Administration, Table A.3. Carbon
				Dioxide Uncontrolled Emission Factors
				Propane Gas
				http://www.eia.gov/electricity/annual/html/epa_a_03.ht
				<u>ml</u>
C_1	4.53592E-10	MMT/lb	conversion factor to convert pounds of	Assumed minimal or no significant emission from other gases, besides carbon dioxide (CO ₂), with global warming
			CO ₂ into million metric ton of CO ₂ e	
			(MMTCO ₂ e)	
C_2	9.07185E-7	MMT/short	conversion factor to convert short ton	potential.
		ton	of CO ₂ into MMTCO ₂ e	

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